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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

PERRY, ANTHONY T

ART UNIT	PAPER NUMBER
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2879

DATE MAILED: 10/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/678,353

Applicant(s)

BAEK ET AL.

Examiner

Anthony T. Perry

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11, 13-27 and 29-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13-27 and 29-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

The Amendment filed on 8/04/2005, has been entered and acknowledged by the Examiner.

Cancellation of claims 12 and 28 has been entered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 14, 17-19, and 21-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Watanabe et al. (US 6,433,470).

Regarding claims 14 and 18, Watanabe discloses a color CRT comprising a panel (1) having a substantially flat outer surface and an inner surface having a certain curvature, a mask (6) having a plurality of electron beam passing holes, wherein an effective surface diagonal size of the panel is not greater than about 534mm (see Fig. 1). Watanabe teaches a panel wherein $R_{xs}/R_{yc} = 1.1$ (see col. 14, lines 53-65).

Regarding claim 17, Watanabe teaches the panel having an outer surface greater than about 30,000mm (col. 14, lines 1-9).

Regarding claim 19, Watanabe teaches the shadow mask has a thickness of 0.13mm (col. 4, lines 61-63).

Regarding claim 21, Watanabe teaches that the panel has a value for Ryc that is between 1.3R and 3.3R (col. 9, lines 6-23).

Regarding claim 22, Watanabe teaches that the panel has a value for Rxs that is between 1.8r and 5.8R (col. 10, lines 24-36).

Regarding claim 23, Watanabe teaches that the panel has a value for Rxs/Rys = 1.1 (col. 10, lines 33-36).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15-16, 24-27, 29-30, and 32-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. (US 6,433,470) as applied to claim 14, above, in view of Pyun et al. (US 6,274,977).

Regarding claims 15-16, Watanabe does not specifically teach values for the thicknesses of the panel. However, Pyun lists thicknesses for a CRT including Tx = 20mm, Ty = 20.8, and Td = 25.4 (see col. 3, lines 40-45). Pyun teaches that 15mm is an appropriate thickness of the center portion (Tc) (see col. 3, lines 47-51). Accordingly, Pyun teaches that Ty/Tx = 1.0 and Td/Tc = 1.7. Pyun teaches that such peripheral thickness ratios contribute to reduce raster distortion and allow for a corresponding shadow mask with good structural strength (col. 3, lines 65 – col. 4, line 2). Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the panel taught by Watanabe with thicknesses

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taught by Pyun in order to provide a CRT with low raster distortion and a shadow mask having an appropriate structural strength.

Regarding claims 24-27, 30, and 34-35, Pyun teaches values $T_x = 20\text{mm}$, $T_y = 20.8$, and $T_d = 25.4$ (see col. 3, lines 40-45). Pyun teaches that 15mm is an appropriate thickness of the center portion (T_c) (see col. 3, lines 47-51). $Z_y = T_y - T_c = 5.8\text{mm}$, $Z_x = T_x - T_c = 5\text{mm}$, and $Z_d = T_d - T_c = 10.4\text{mm}$. Accordingly, Pyun teaches a panel with $Z_y = 0.56 * Z_d$ and $Z_x = 0.48 * Z_d$.

Pyun does not specifically state the values for the $Z(y/2)$, $Z(x/2)$, and $Z(d/2)$. Watanabe teaches a panel wherein $R_{xs}/R_{yc} = 1.1$ (see col. 14, lines 53-65). Watanabe teaches that the panel has a value for R_{yc} that is between $1.3R$ and $3.3R$ (col. 9, lines 6-23) and a value for R_{xs} that is between $1.8r$ and $5.8R$ (col. 10, lines 32-33). Watanabe teaches that by providing the panel with such radii of curvature an improved feeling of flatness and improved drop strength can be attained (col. 15, lines 50-54). Applying the radii of curvature for R_{yc} , R_{xc} , and R_{dc} taught by Watanabe and the values of Z_y , Z_x , and Z_d taught by Pyun, the combined invention teaches $0.22Z_d \leq Z(d/2) \leq 0.26Z_d$, $0.21Z_y \leq Z(y/2) \leq 0.25Z_y$, and $0.23Z_x \leq Z(x/2) \leq 0.27Z_x$.

Reason for combination stated in the rejection of claims 15-16, above, applies.

Regarding claim 29, Pyun teaches that the panel has a value for $T_d/T_c = 1.7$ (see rejection of claims 24-25, above).

Reason for combination stated in the rejection of claims 15-16, above, applies.

Regarding claim 32, Pyun teaches that the panel has a value for $T_y/T_x = 1.0$ (see rejection of claims 24-25, above).

Reason for combination stated in the rejection of claims 15-16, above, applies.

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Regarding claim 33, Watanabe teaches the shadow mask has a thickness of 0.13mm (col. 4, lines 61-63).

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. (US 6,433,470) as applied to claim 14, above, in view of Hu et al. (US 6,072,270).

Regarding claim 20, Watanabe does not specifically teach a shadow mask having a thickness between .10 and .12 mm. However, shadow masks having a thickness of .12mm are known, as evidenced by the Hu reference (see the abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a shadow mask having a thickness of .12mm in order to reduce manufacturing costs of the CRT.

Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pyun et al. (US 6,274,977) in view of Pyun et al. (US 6,274,977) as applied to claim 24, above, in view of Bae et al. (US 6,639,346).

Regarding claim 31, Watanabe and Pyun do not specifically mention the transmittance rate of the central portion of the panel. However, Bae et al. teach a tinted panel having a central portion transmittance rate between 45% and 75% (see col. 8, lines 1-17). Bae teaches that having a tinted film that has a transmissivity that increase closer to the panel's edge provides a CRT with a display brightness that is substantially uniform across the surface of the panel. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to set the center transmittance of the panel to about 55%, as taught by Bae et

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al., to the panel of the Watanabe-Pyun combined invention in order to provide a CRT with a display brightness that is substantially uniform across the surface of the panel.

Claims 1, 4-6, and 8-11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. (US 6,433,470) in view of Bae et al. (US 6,639,346).

Regarding claims 1, and 5, Watanabe discloses a color CRT comprising a panel (1) having a substantially flat outer surface and an inner surface having a certain curvature, a mask (6) having a plurality of electron beam passing holes, wherein an effective surface diagonal size of the panel is not greater than about 534mm (see Fig. 1). Watanabe teaches a panel wherein $R_{xs}/R_{yc} = 1.1$ (see col. 14, lines 53-65). Watanabe remains silent about the transmittance of the central portion of the panel.

However, Bae et al. teach a tinted panel having a central portion transmittance rate between 45% and 75% (see col. 8, lines 1-17). Bae teaches that having a tinted film that has a transmissivity that increase closer to the panel's edge provides a CRT with a display brightness that is substantially uniform across the surface of the panel. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to set the center transmittance of the panel to about 55%, as taught by Bae et al., in the panel of the Watanabe reference in order to provide a CRT with a display brightness that is substantially uniform across the surface of the panel.

Regarding claim 4, Watanabe teaches the panel having an outer surface greater than about 30,000mm (col. 14, lines 1-9).

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Regarding claim 6, Watanabe teaches the shadow mask has a thickness of 0.13mm (col. 4, lines 61-63).

Regarding claim 8, Watanabe teaches that the panel has a value for R_{yc} that is between 1.3R and 3.3R (col. 9, lines 6-23).

Regarding claim 9, Watanabe teaches that the panel has a value for R_{xs} that is between 1.8r and 5.8R (col. 10, lines 24-36).

Regarding claim 10, Watanabe teaches that the panel has a value for $R_{xs}/R_{ys} = 1.1$ (col. 10, lines 33-36).

Regarding claim 11, Watanabe teaches that the panel has a value for $R_{ys}/R_{yc} = 1.0$ (col. 14, lines 53-65).

Regarding claim 13, Watanabe teaches that the inside surface of the panel has radii of curvature that satisfy the condition $R_{xc} \geq R_{dc} \geq R_{yc}$ (see col. 9, lines 6-22).

Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. (US 6,433,470) in view of Bae et al. (US 6,639,346) as applied to claim 1, above, further in view of Pyun et al. (US 6,274,977).

Regarding claims 2-3, Watanabe and Bae do not specifically teach values for the thicknesses of the panel. However, Pyun lists thicknesses for a CRT including $T_x = 20\text{mm}$, $T_y = 20.8$, and $T_d = 25.4$ (see col. 3, lines 40-45). Pyun teaches that 15mm is an appropriate thickness of the center portion (T_c) (see col. 3, lines 47-51). Accordingly, Pyun teaches that $T_y/T_x = 1.0$ and $T_d/T_c = 1.7$. Pyun teaches that such peripheral thickness ratios contribute to reduce raster distortion and allow for a corresponding shadow mask with good structural strength (col. 3, lines

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65 – col. 4, line 2). Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the panel taught by the Watanabe-Bae combined invention with the thicknesses taught by Pyun in order to provide a CRT with low raster distortion and a shadow mask having an appropriate structural strength.

Claim 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. (US 6,433,470) in view of Bae et al. (US 6,639,346) as applied to claim 1, above, further in view of Hu et al. (US 6,072,270).

Regarding claim 7, Watanabe and Bae do not specifically teach a shadow mask having a thickness between .10 and .12 mm. However, shadow masks having a thickness of .12mm are known, as evidenced by the Hu reference (see the abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a shadow mask having a thickness of .12mm in order to reduce manufacturing costs of the CRT.

Response to Arguments

Applicant's arguments filed 8/04/05 have been fully considered but they are not persuasive.

With regards to the Applicant's arguments that Watanabe does not teach $R_{xs}/R_{yc} = 1.1$, the Examiner disagrees. The Examiner notes that there are only two significant figures in the claimed range. The Examiner agrees that Watanabe teaches $R_{xs}/R_{yc} = 1.061$. However, given the amount of significant figures in the claimed range, the value is appropriately rounded up to 1.1, and is therefor anticipated by Watanabe.

The Examiner notes that if 1.10 were claimed, the range would no longer be anticipated by Watanabe, but would still be obvious over Watanabe. MPEP 2131.03, III recites,

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"[A]nticipation under § 102 can be found only when the reference discloses exactly what is claimed and that where there are differences between the reference disclosure and the claim, the rejection must be based on § 103 which takes differences into account." *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985)

(Claims to titanium (Ti) alloy with 0.8% nickel (Ni) and 0.3% molybdenum (Mo) were not anticipated by, although they were held obvious over, a graph in a Russian article on Ti-Mo-Ni alloys in which the graph contained an actual data point corresponding to a Ti alloy containing 0.25% Mo and 0.75% Ni.).

Applicant's arguments with respect to independent claim 24 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments with respect to the use of the Kang reference have been considered but are moot in view of the new ground(s) of rejection.

Other Prior Art Cited

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Canevazzi (US 5,107,999) reads on claims 1 and 14, teaching $R_{xs}/R_{yc} = 1.8$ (See Fig. 3 and table II).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to *Anthony Perry* whose telephone number is (571) 272-2459. The examiner can normally be reached between the hours of 9:00AM to 5:30PM Monday thru Friday.

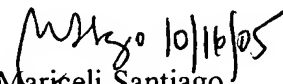
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel, can be reached on (571) 272-24597. **The fax phone number for this Group is (571) 273-8300.**

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Anthony Perry
Patent Examiner
Art Unit 2879
October 14, 2005



Mariceli Santiago
Primary Examiner
Art Unit 2879